

# PATENT ABSTRACTS OF JAPAN

(11) Publication number : 2000-121317

(43) Date of publication of application : 28.04.2000

(51)Int.CI. G01B 11/00

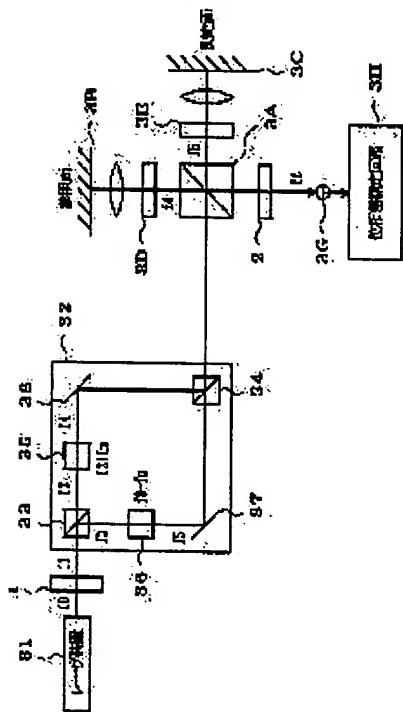
G01B 9/02

G01B 11/30

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## (54) INTERFERENCE PHASE DETECTING SYSTEM FOR OPTICAL INTERFEROMETER



(57) Abstract:

**PROBLEM TO BE SOLVED:** To precisely measure a phase difference corresponding to the distance between stepped parts, even if a reflectivity varies, by rotating a laser beam by a specified angle in accordance with the reflection factor of a measuring plane.

**SOLUTION:** A polarization angle adjusting means 1 rotates a laser beam f0 by a specified angle in accordance with the reflection factor of a measuring plane 3C, and adjusts the polarization angle of a laser beam f1. In accordance with an incident angle (polarization angle) of this laser beam f1, a beam splitter 33 outputs a transmitted laser beam f2 and a reflected laser beam f3 of different intensities. The transmitted laser beam f2 is modulated and becomes a laser beam f4, and the reflected laser beam f3 is also modulated and becomes a laser beam f5. They enter a beam splitter 34 respectively and synthesized, and enter

a polarizing beam splitter 3A. A laser beam f4 reflected irradiates a reference plane 3B, and a laser beam f5 transmitted irradiates a measuring plane 3C. And the laser beams f4, f5 reflected respectively enters a photoelectric receiving element 3G, and becomes an electric signal in accordance with the interference component of both laser beams. And a

phase difference measuring circuit 3H measures the phase difference between both laser beams in accordance with the level difference of the measuring plane 3C.

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**LEGAL STATUS**

[Date of request for examination]

[Date of sending the examiner's decision of rejection]

[Kind of final disposal of application other than the examiner's decision of rejection or application converted registration]

[Date of final disposal for application]

[Patent number]

[Date of registration]

[Number of appeal against examiner's decision of rejection]

[Date of requesting appeal against examiner's decision of rejection]

[Date of extinction of right]

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